



Competitive Liner Shipping Network Design

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Competitive Liner Shipping Network Design

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Background

The backbone of modern global trade is maritime transportation. Especially the liner shipping industry, which today carries around 60 percent of international goods by value.

Liner Shipping carriers have colossal asset and operational costs, and a well designed network is crucial to the profitability of the network. To obtain a profitable network it is crucial to have a highly efficient network in terms of capacity utilization on board the vessels and the lead times of the cargo transported.

Current research on Liner Shipping Network Design does not account for the lead times of cargo in the network, nor does it consider the important capacity issue of repositioning empty containers due to asymmetric world trade or trade legislation such as cabotage rules. Recent progress within the field of liner shipping network design means that we are ready to target a solution to these constraints.

At the same time Liner Shipping Network Design has targeted a redesign of the entire network not considering the significant cost of repositioning vessels and disregarding that a network is organic and iteratively adapts to new market situations.

Research question

This project aims to bring liner shipping network design closer to the operations of global carriers by incorporating lead times and other operational constraints such as empty repositioning and cabotage rules.

Research design

An existing mathematical model and prototype of liner shipping network design will be expanded to account for lead times, empty repositioning and other operational constraints. The prototype will be iteratively expanded with one constraint per work package and network scenarios will be designed to test the performance of each constraint. The first work Package in 2013 targets lead times.

Expected results

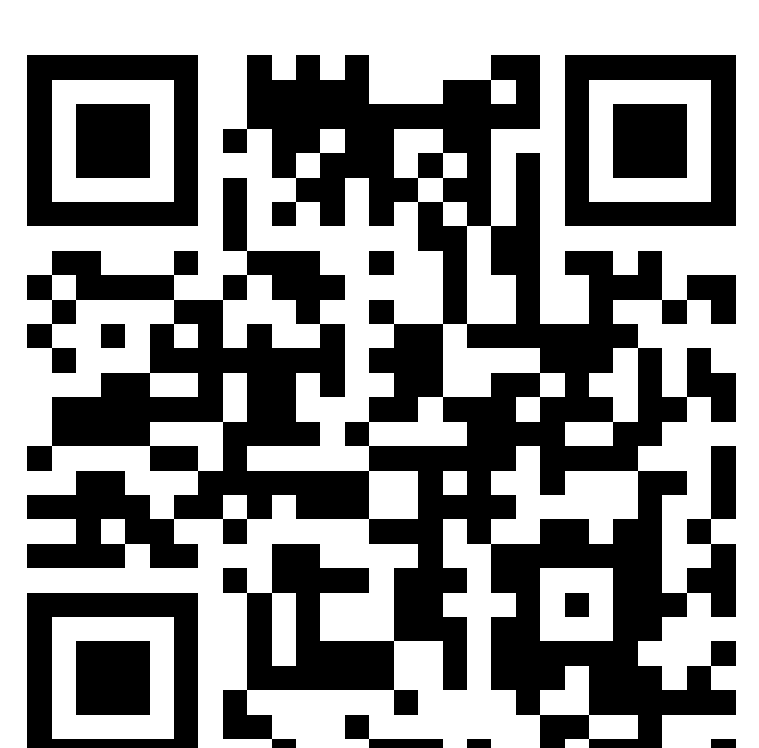
A prototype of a tactical decision support tool to make quantified decisions about incremental network changes. Ideally the project will lead to a basis for decision support tools which can be used both at the strategic, tactical, and operational level in a modern liner shipping company.

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31th January 2016



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